

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A method of monitoring live electrical equipment at high or medium voltage, the method comprising the following steps:

emitting a radio wave for illuminating a zone of the equipment in radio energy close to a point where a physical parameter is to be monitored;

re-emitting the received radio wave with amplitude-modulation responsive to a digital signal related to said physical parameter; and

receiving the retransmitted radio wave outside the equipment and demodulating it to obtain a signal related to said parameter.

2. (previously presented): A method of monitoring live electrical equipment at high or medium voltage, the method comprising the following steps;

emitting a radio wave for illuminating a zone of the equipment in radio energy close to a point where physical parameter is to be monitored;

re-emitting the received radio wave with amplitude-modulation responsive to said physical parameter crossing a threshold at said point; and

receiving the retransmitted radio wave outside the equipment and demodulating it to obtain a signal indicative of said threshold being crossed.

3. (previously presented): A method according to claim 1, in which said physical parameter is temperature.

4. (previously presented): An apparatus for monitoring live electrical equipment at high or medium voltage, the apparatus comprising:

at least one sensor unit placed on the equipment, comprising a first radio antenna, a sensor for producing a digital signal related to a determined physical parameter at a point to be monitored, and amplitude-modulation means connected to the sensor and to the first antenna, and activated by the energy received by said antenna;

a transceiver unit placed outside the equipment and having a second radio antenna for emitting a radio wave to illuminate the first antenna, a power supply source, and signal processing means connected to the second antenna; and

the first antenna retransmitting towards the second antenna the radio wave that has been transmitted thereby, while simultaneously amplitude-modulating it in response to the output signal of the sensor, said signal processing means being arranged to provide a signal related to said parameter.

5. (previously presented): An apparatus for monitoring live electrical equipment at high or medium voltage, the apparatus comprising:

at least one sensor unit placed on the equipment, comprising a first radio antenna, a two-state sensor responsive to a determined physical parameter at a point to be monitored, the sensor changing state when said parameter crosses a threshold, and amplitude-modulation means connected to the sensor and to the first antenna, and activated by the energy of a radio wave received by said antenna;

a transceiver unit placed outside the equipment and having a second radio antenna for illuminating the first antenna, a power supply source, and signal processing means connected to the second antenna; and

the first antenna retransmitting towards the second antenna the radio wave that has been transmitted thereby, while simultaneously amplitude-modulating it in response to the state of the sensor, said signal processing means being arranged to provide a signal $\text{sgn}(12)$ indicative of the state of the sensor.

6. (original): An apparatus according to claim 5, in which at least two sensor units are provided on the equipment, each sensor unit being arranged to receive the wave transmitted by the second antenna and to retransmit an amplitude-modulated wave to the second antenna, the modulation being a function of the state of the sensor and of identity information, the processing means of the transceiver unit being arranged to deliver said signals with information identifying the respective sensor units.

7. (original): An apparatus according to claim 6, in which said parameter is temperature.

8. (original): An apparatus according to claim 7, in which at least one sensor unit is provided in which the sensor is responsive to a second physical parameter crossing a threshold at the same point on the equipment.

9. (original): An apparatus according to claim 8, in which the second physical parameter is current.

10. (currently amended): An apparatus for monitoring high or medium voltage electrical equipment ~~such as a three phase distribution bay~~, the apparatus comprising:

at least one sensor unit per phase, the unit being placed on a live element of the equipment and comprising a first radio antenna, a two-state sensor responsive to temperature at a point of said ~~conductor~~ live element, the sensor changing state when the temperature crosses a threshold, and amplitude-modulation means connected to the sensor and to the first antenna, and activated by the energy of a radio wave received by said first antenna;

a transceiver unit placed outside the equipment and having a second radio antenna for illuminating the first antenna, a power supply source, and signal processing means connected to the second antenna; and

the first antenna retransmitting to the second antenna the radio wave transmitted by the second antenna together with amplitude-modulation in response to the state of the sensor and to information identifying the sensor, said signal processing means being arranged to supply, for

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each sensor unit, a signal $sgn(12)$ indicative of the state of the sensor together with associated identity information $Id(12)$.

11. (original): An apparatus according to claim 10, in which at least two sensor units are provided having respective sensors responsive to temperature at the same point, said sensors changing state on crossing different thresholds.

12. (original): Apparatus according to claim 10, in which a plurality of sensor units are provided in which the respective sensors are responsive to temperature at different points.

13. (original): An apparatus according to claim 10, in which at least one sensor unit is provided in which the sensor is responsive to a second physical parameter other than temperature.

14. (currently amended): an apparatus according to claim 13, in which said second physical parameter is the current in said ~~conductor~~ live element.

15. (original): An apparatus according to claim 13, in which the sensors are responsive respectively to the value of the temperature and to the value of said second parameter at the same point.

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16. (original): An apparatus according to claim 10, in which the temperature sensor comprises a temperature switch mounted on said live element, and a circuit connected to the first antenna and including a contact which changes state when the temperature crosses said threshold.

17. (previously presented): A method according to claim 2, in which said physical parameter is temperature.